

# Strengthening capacities in B&H to address environmental problems through remediation of high priority hot spots

## Bosnia and Herzegovina Clean Up projects:

- Tuzla University Clinic Center, Gradina
- Hospital for Pulmonary Diseases and Tuberculoses, Slavinovici
  - Local Community of Dragodol/Tusanj

# Remediation of two environmental Hot Spots in BiH

## - Situation before clean up works

- Heating system in both hospitals is based on coal fired boilers - source of pollution in very center of Tuzla City.
- Total consumption of coal 11,000 tons per year
- Hospitals generate approximately 2,000 m<sup>3</sup> of slag and ash per year.
- The coal has the highest sulphur content of all coals sourced in BiH. **Coal's' total sulphur content** is approximately 2.3% mass, of which approximately 1.5% is combustible
- Communities of Dragodol and Tusanj are covered by individual and separated residential heating systems.
- AQI calculated during the period 2003-2006 exceeded 100 level for up to 174 days per year and 300 level for up to 32 days per year

## Remediation of environmental Hot Spots in BiH - situation after clean up works are completed

- Central heating system in two hospitals completely restructured and connected to district heating system for winter season heating and winter season sanitary hot water.

Completely restructured boiler rooms. Coal based boilers turned into natural gas boilers for supply of whole year steam, non-winter season sanitary hot water, serve as secondary heating system in case of district heating malfunction.

- Local Community of Dragodol/ Tusanj connected to district heating system, covered by completely new hot water pipeline network. Collective residential units with 650 household connected to district heating system (additional 100 individual residential units can be connected to new network)

Total costs for all three projects: 1,980.949 USD ( 3,056.902 BAM)

- Gradina hospital- 1,303.351.92 BAM
- Slavinovici hospital- 759,379.07 BAM
- Local Communities of Dragodol and Tusanj - 994,171.30 BAM

Contribution of Municipality Tuzla is 465.000 USD fin + 465.000 USD in kind

**Gradina before**



**Gradina before**



**Slavinovici works start**



**Gradina after**



## Remediation of two environmental Hot Spots in BiH Results / Impact

Air monitoring will be conducted through modeling that will be finalized by end of June 2010.

Expected reduction of pollutant emissions:

1. At least 190 t/y less SO<sub>2</sub>
2. At least 13 t/y less NO<sub>x</sub>
3. At least 10 t/y less PM total
4. At least 1300 t/y less slag and ash
5. Reduction of at least 2/3 of coal consumption i.e. 7500 t/y.

With the above mentioned reduction of pollutants, impact on human health improvement will be significant.

# Capacity building activities

As recent studies show low level of awareness and knowledge on energy efficiency and usage of renewable energy sources in BiH, as well as poor efficiency in energy consumption, 2-day capacity building trainings in energy efficiency have been organized in 5 BiH municipalities (Bijeljina, Tuzla, Banja Luka, Livno and Trebinje).

The training was organized in two modules:

- Module 1 on energy efficiency in public sector (day 1)
- Module 2 on energy efficiency in private sector (day 2)

# Capacity building activities

Topics covered by these trainings include measures to improve the energy performance of products, buildings and services, improve the field of energy production and distribution, promote and increase usage of renewable energy sources and recommend technical and strategic methods for efficient improvements (increase profits, reduce financial risk, improve service quality, and boost worker productivity).

Approximately 160 key stakeholders in public (municipalities, public companies...) and private sectors attended the training and were given advise about concrete ways how to increase energy efficiency.

**Evaluation in progress...**

# Public Awareness Raising Activities

Activities:

- wide media campaign (radio and TV advertisements, leaflets) on environmental protection and energy efficiency
- interactive educational workshops in Tuzla and Ugljevik on energy efficiency for representatives of local communities, high school students, key construction stakeholders and key stakeholders in energy management, budgeting and investing
- campaign closing round table

# Public Awareness Raising Activities

- Key message on energy efficiency effectively passed to citizenry, basic knowledge on rational use of energy passed to different target groups
- 500 000 informed through media campaign, 300 through educational workshops and 40 stakeholders participated at the round table.

# Grants to NGOs

Two Micro-capital Grant Agreements have been made with:

- Project: Active promotion of energy efficiency and solar energy in the municipality of Tuzla through public campaigns and demonstration activities
- Outcome: Increased knowledge of 400 citizens about environment protection, energy saving of 8000 kWh per year through installation of solar system for water heating in Public health institution, Tuzla and energy saving of 1,62 kWh for 9 light units through installation of LED lights in light system of Tuzla municipality
- Project: Youth are the future for the environment
- Outcome: Increased knowledge of 600 students and 160 children about ways of energy savings, 75% reduction in energy consumption for illumination through replacement of 600 light bulbs with energy savings ones in student dormitories, 100% reduction in water losses through replacement of 90 faucets and 37 toilet flushers in the Home for Children without Parental Care

# Lessons learnt

- Tuzla municipality has taken up an active role in project implementation
- There are NGOs capable of carrying out projects in energy efficiency and environment protection
- Although knowledge of local stakeholders on energy efficiency is limited, there is increased interest